

### III. Analysis

This report tracks the supply of licensed health professionals (illustrated in graphs) and their distribution across the state (illustrated in maps) over the 27-year period from 1979 to 2005. Supply data for each of 16 professions are depicted in three separate different graphs:

1. practitioners per 10,000 population ratios for the state compared to national trends (when comparable national data are available);
2. practitioners per 10,000 population ratios for metropolitan vs. nonmetropolitan counties; and
3. practitioners per 10,000 population ratios for areas that the federal government has persistently designated as health professional shortage areas (HPSAs).

Two county-level maps are also included for each profession to illustrate:

1. the supply of practitioners per 10,000 population in 2005; and
2. the change in practitioners per 10,000 population ratio from 2001 to 2005.

Because there are only two years of data available for respiratory therapists, the data are presented in tabular format and included in a map illustrating the supply per 10,000 population by county in 2005.

#### A. Graphs

##### 1. Practitioners per 10,000 Population Ratios: US and NC

North Carolina's population has grown dramatically over the last twenty years. While the overall population of the US has increased by about 30% since 1979, North Carolina's population has increased by 50% (Figure 2). The population has grown fastest in the urbanized counties around Charlotte, Raleigh, and Wilmington, as well as in the Northeast corner of the state (Figure 1). Some rural counties, generally those on the coast or in the mountains with recreational or retirement potential, also saw a substantial population expansion. Figure 3 illustrates population density, highlighting areas of high population concentrations. Any examination of the changes in the supply and distribution of the health care workforce must take into account this growth in population, as well as the differences in growth rates across counties of the state. To account for these factors, changes in the supply of health care professionals over the 27 years are illustrated for the state and the nation by examining their number per 10,000 people per year. This ratio of practitioners per 10,000 population provides a better mechanism to compare the supply and distribution of health professionals across varying geographic areas than would be obtained from use of simple raw counts.

##### 2. Practitioners per 10,000 Population Ratios: Metropolitan-Nonmetropolitan NC

Health care professionals are not distributed evenly across North Carolina; they tend to concentrate in and around cities, and those practitioners in nonmetropolitan locations are more likely to locate in larger rural towns. To illustrate the differences between metropolitan and nonmetropolitan North Carolina, the professionals-to-population ratios over the past 27 years are graphed using a system that classifies counties according to their urban character and their proximity to urban centers. The metropolitan-nonmetropolitan definition used in this report is based on the Federal Office of Management and Budget (OMB) definition as of December 2005, which is based on Census population estimates. The OMB changed the way they classified metropolitan areas after the 2000 Census. They now use Core Based Statistical Area (CBSA) classifications to define metropolitan status. For the purposes of this report, "Metropolitan" was used for the metropolitan class, and "Micropolitan" and "Areas Outside of CBSAs" (rural), were combined for nonmetropolitan (Figure 4).

##### 3. Practitioners per 10,000 Population Ratios: Health Professional Shortage Areas

Some North Carolina communities have considerable difficulties attracting and retaining an adequate supply of health care professionals due to geographic isolation, socio-economic factors, or other reasons. The Health Resources and Services Administration (HRSA) of the Department of Health and